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| EXAMINER | |
|---|---|
| CALANDRA, ANTHONY J | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

***<u>Advisory Action</u>***

***Interview Summary***

Attorney called on May 6, 2011 to discuss whether an advisory action was pending. The examiner stated that an action would be sent early the week of May 10$^{th}$. A discussion of whether the new claims would be entered occurred. The examiner stated that they could not because at least claim 34 was a multiple dependent claim and that claim 30 was potentially invalid over 112 2$^{nd}$ and/or 4$^{th}$ paragraph. The examiner stated that he would include a suggested claim for claim 34 and make a determination on the validity of claim 30 in the next advisory action.

***Amendments Not Entered***

The amendments are not entered as they do not place the application in a better form for appeal.

Claim 30 does not place the claim in a better position for allowance because it refers to only a portion of claim 28. A proper dependent claim incorporates by reference the whole of the parent claim.

The applicant has the option of rewriting claims 30 as an independent claim:

Claim 30: A method for processing hardwood particles comprising contacting hardwood particles with a wood cooking aid, wherein the wood cooking aid comprises a fatty acid component and a rosin acid component and/or salts thereof, and wherein said wood cooking aid comprises about 70% to about 2% fatty acids, about 20 to about 98% rosin acids, and less than about 15% unsaponifiable material; said fatty acids comprise a monomer part produced during dimerization of fatty acids; and the fatty acid distribution of said monomer part is

branched oleic acids about 14 to about 16%, branched stearic acid about 13 to about 15 %, oleic acid about 19 to about 21% and other fatty acids about 42 to about 44%.

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In the alternate, the applicant could rewrite claims 28-31 as follows:

Claim 28: A method for processing hardwood particles comprising contacting hardwood particles with a wood cooking aid, wherein the wood cooking aid comprises a fatty acid component and a rosin acid component and/or salts thereof, and wherein said wood cooking aid comprises about 70% to about 2% fatty acids, about 20 to about 98% rosin acids, and less than about 15% unsaponifiable material; said fatty acids comprise a monomer part produced during dimerization of fatty acids; and the fatty acid distribution of said monomer part is branched oleic acids about 14 to about 16%, branched stearic acid about 13 to about 15 %, oleic acid about 19 to about 21% and other fatty acids about 42 to about 44%.

Claims 29: The wood cooking method of claim 28 wherein the hardwood particles are birch.

Claims 30: A wood cooking mixture formed by the method of claim 28.

Claim 31: The wood cooking mixture of claim 30 wherein the hardwood particles are birch.

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Claim 34 is an improper multiple dependent claim as it refers to two sets of claims to different features [see e.g. MPEP section 608.01(n)]. A multiple dependent claim is proper only when referring to claims in the alternate.

> 3. Reference to Two Sets of Claims to Different Features
>
> Claim 9. A gadget as in claim 1 or 4 made by the process of claims 5, 6, 7, or 8, in which ---

Claim 34 should be rewritten as follows: "The method of claim 32 wherein said monomer part comprises branched oleic acids about 14 to about 16%, branched stearic acid about 13 to about 15 %, oleic acid about 19 to about 21% and other fatty acids about 42 to about 44%."

***Request for reconsideration***

***Applicant argues that DUNLAP dilutes the fatty acid/resin acid cooking aid prior to adding to wood cooking particles. The applicant argues that the dilution treatment could change the ratio of fatty acids/resin acids through chemical change or by thermal decomposition. The applicant argues that this is not a simple mixing with a solvent as it would not be given a name.***

The examiner has treated the dilution of DUNLAP as a standard dilution. The examiner has argued that the dilution is similar to the dilutions [4/4/2011 Final rejection pg. 3 third paragraph] as allowed by the applicant's specification [Specification pg. 10-13]. FARLEY confirms that the dilution is a simple dilution of mixing the distilled tall oil with an ethanol solvent with potassium hydroxide [pg. 25 column 1 paragraph 1]. The instant claims allow either the acid and/or the salts thereof to be present therefore the presence of potassium

hydroxide is consistent with the claims. The dilution is done at low temperature (20 degrees F) therefore there is not any thermal degradation.

***Applicant argues that the examiners interpretation of 'about' should be interpreted as 'slightly above(below)'.***

The examiner withdraws the 102 rejections of claims 3 and 24 towards DUNLAP based upon the interpretation of the word 'about'.

***Applicant argues that the Chimney Sweeps reference shows that birch is much denser than aspen and thus is significant in predicting reactivity.***

*Chimney Sweeps* gives aspen to be 2,295 lbs/cord while it states that birch can range from 3,890 (black birch) to 3,179 (white birch) lbs/cord. The difference between black and white birch sub-species of birch is (3890-3179)/3179 * 100 = 22.3% difference. The difference between white birch and aspen is (2,295-3,179)/3,179 *100 = 27.8% difference. Therefore it can be seen the variation between aspen and one-sub species of birch and variation between sub-species of birch is only an absolute difference of 5.5%. This small difference suggests that density is not a predictive factor in determining whether DTO will work in aspen and birch.

Further supporting that wood density is not an important factor is that crude tall oil or DTO works by washing out extractives from pulp [DUNLAP pg. 377]. As pulp the wood is no longer a log or a chip but individual fibers/flocs of fibers; it is not clear why the density of chips/logs would be a factor in extractive removal from a suspension of fibers.

Finally, the applicant argues that the difference between the densities birch and aspen is great enough for there to be a lack of predictability for the chemical treatment with DTO. The examiner notes that the genus of hardwoods claimed in the independent claims includes the hardwood Buckeye which has a density of 1,984 lbs/cord. The applicant has only given the single specific species of birch while claiming the whole of hardwoods. It is incongruous that the applicant is claiming the whole genus of hardwoods which include species with a density less than aspen while simultaneously stating that difference in densities makes the use of DTO not predictable.

***Applicant argues that Wikipedia shows that are very different taxonomically and this should be considered.***

While birch and aspen are grouped differently taxonomically they are both grouped together morphologically (the study of the form and structure and their specific structural features) as hardwoods and further sub-grouped morphologically as Northern Hardwoods based upon the applicant's MAPLE reference [pg. 2 column1 paragraph 3]. MAPLE states that northern hardwoods are similar in that they have higher population of fibers, thinner cell walls and smaller vessel elements [pg. 2 column1 paragraph 3]. The examiner notes that the applicant uses the morphological grouping in the independent claims (hardwoods) and not the taxonomic grouping.

***Applicant states that MAPLE does not state that aspen and birch come in mixed pulp.***

Upon review of the reference the examiner agrees that MAPLE only discloses the mixing of pulps in general and not birch and aspen specifically.

***Applicant questions the use of the term similar and argues that the fiber lengths are 30% different. The applicant states that the diameters are not close either.***

A difference of 30% in fiber length is similar in comparison to other woods. As seen in the MAPLE reference an average softwood fiber is 400% longer than an average hardwood fiber {(4 mm-1 mm)/1 mm *100 = 400% [Figure 1]}. Further an average southern hardwood fiber is 100% greater in length than an average northern hardwood fiber {(2 mm-1 mm)/1 mm *100 = 100% [Figure 2]}.

Looking to diameters ASPEN has a diameter of 23 and birch has a diameter of 25 microns. This is a difference of 8.7% {(25 microns -23 microns)/23 microns *100% [Figure 3 and 4]}. In comparison the difference between hardwoods and softwoods is 60% {40microns - 25 microns / 25 microns *100 [Figure 1]}.

Finally, the applicant argues that the difference between the fiber lengths of birch and aspen is great enough for there to be a lack of predictability for the chemical treatment with DTO. The examiner notes that the genus of hardwoods claimed in the independent claims includes the hardwood Maple which has a length of 0.7 mm and a diameter of 20 microns. The applicant has only given the single specific species of birch while claiming the whole of hardwoods. It is incongruous that the applicant is claiming the whole genus of hardwoods which include species with a length and diameter less than aspen while simultaneously stating that difference in length (or diameter) makes the use of DTO not predictable.

***Applicant argues that the lignin content is 20% different and the hemicellulose is 25% different between aspen and birch and questions how these values could be considered similar.***

A difference of 20% or 25% in lignin/hemicellulose is similar in comparison to other woods. The difference in lignin is actually 16.5% {21.2%-18.2%/18.2% *100}. This difference is more similar than aspen as compared to other hardwoods such as white oak at 39% {25.3%-18.2%/18.2% *100} and clearly similar as compared to softwoods such as Douglas fir with a difference of 52.2% {27.7%-18.2%/18.2% *100}.

The difference in hemicellulose is 22.8% {21.4%-17.5%/17.5% *100} which compares to a difference of -54.5% between Douglas fir and aspen {7.9%-17.5%/17.5% *100}.

***Applicant argues that extractives [of aspen] are primarily fatty acids and that the type of fatty acids is important. The applicant questions how does DUNLAP compares the fatty acids of birch and aspen.***

DUNLAP states that hardwoods (which include birch and aspen) have only trace amounts of fatty acids [pg. 366 1st paragraph]. DUNLAP states that resin acids are important for removing unsaponifiables from the pulp [pg. 367 1st paragraph] as they act as co-surfactants with fatty acids. The addition of resin acids with distilled or crude tall oil increases the amount of resin acids present in both birch and aspen pulps thus improving extractive removal.

***Applicant argues a long-felt need for the deresination of birch and that the applicant's invention solves this problem.***

While it is known that birch has problems with resin there were prior art solutions including crude tall which is alluded to by the applicant in the specification as a known solution "the problem with birch cooking can be avoided by using crude tall oil obtained from soft-wood cooking. The fatty acids and rosin acids of the crude tall oil improve the removal of the

extractives from birch since they act as surfactants" [specification pg. 2 paragraph 1]. As such the applicant's arguments do not meet the test of Newell because the problems were previously satisfied.

Second, the long-felt need must not have been satisfied by another before the invention by applicant. Newell Companies v. Kenney Mfg. Co., 864 F.2d 757, 768, 9 USPQ2d 1417, 1426 (Fed. Cir. 1988)

Additionally, it is not clear if the invention as claimed solves the problem as the applicant suggests. The applicant does not require any specific concentration of tall oil on wood. As such a low concentration of distilled tall oil may perform worse than a higher concentration of crude tall concentration. DUNLAP explains that very high concentrations of crude tall oil can perform better than low concentrations of distilled tall oil [pg. 373 paragraph 2].

***The applicant argues that the examiner definition of long-felt need is incorrect and that the applicant defines the long-felt need that too-much of the extractives present in hardwood such as birch remain in the pulp after processing.***

First and foremost as to the general genus claim of hardwood, the aspen of DUNLAP at least meets the instant independent claims and therefore solves the long-felt need for the genus of hardwoods. Thus it must be looked to the dependent claims of birch and whether long-felt need has been met. The applicant has not shown that the long-felt need has been met. The applicant does not disclose any charge of the instant cooking aid on wood nor does the applicant disclose how much extractives are removed by the instant cooking aid as compared to the prior art solution.

***Applicant argues that there cannot be reasoning to show that DTO works well with only one data point of a single DTO.***

DUNLAP not only gives the experiments using DTO but explains why DTO works. Specifically DUNLAP explains that to remove the most extractives a high saponifiable to unsaponifiable ratio should be used [DUNLAP pg. 366 paragraph 4]. The DTO of DUNLAP has much lower unsaponifiables (1.9%) than the CTO of DUNLAP (19%) [DUNLAP pg. 368 Methods]. Each of the DTOs of MAGEE have lower unsaponifiables than the CTO of DUNLAP [see e.g. pg. 6 of the Final rejection dated 1/19/2011]. Further DTO supplies the necessary resin (rosin) acids which are deficient in hardwoods [pg. 366 last paragraph].

***Applicant argues that DTO is only better sometimes and points to table 3 which compares the first wash filtrate neutrals of CTO vs. DTO. The applicant argues that gum rosin extracts more neutrals.***

There are more total extractives in the DTO filtrates vs. the CTO filtrates which means more extractives were removed by the use of DTO as compared to CTO. The applicant points to more neutrals being removed by CTO.

The examiner first notes that the CTO itself had 25.1% neutrals which may account for some of the higher neutral contents shown as discussed by DUNLAP [pg. 376 paragraph 1]. In addition to the above the person of ordinary skill in the art attempting to remove the most total extracts would look to DTO over CTO. The total extractive content removal is better for DTO vs. CTO or rosin.

***Applicant argues that figure 4 shows that DTO is not always better than CTO.***

DUNLAP gives concentrations at which DTO is better. The person of ordinary skill in the art looking to remove the most extractives would look DTO at the concentrations at which it performs best.

***Applicant argues that there is a teaching away from using DTO over CTO.***

A teaching away is a specific suggestion that an embodiment cannot or should not be used. A teaching that there are some advantages to CTO is not a teaching away from DTO when DUNLAP states that DTO removes the most extractives.

***Applicant argues that even though the DTO would remove some extractives that the person of ordinary skill in the art would not be motivated to make a substitution.***

As the applicant is aware the DTO disclosed in DUNLAP is not offered for sale anymore. To achieve the deresination in aspen as disclosed by DUNLAP the person of ordinary skill in the art would be required to make a substitution for the DTO of DUNLAP with a different distilled tall oil. MAGEE gives a list of distilled tall oils that are a cross-section of what is available in the U.S. Experimentation which is routine to the person of ordinary skill in the art can be completed to determine the optimum concentrations. Each and every one of the DTO compositions meet the instant claimed broad concentration limitations. Seven out of eleven of the DTO compositions of MAGEE meet the narrower dependent claimed ranges of instant claims 3 and 24.

***Applicant argues that it cannot be stated that DTO in general work better than the CTO of DUNLAP.***

Each of the DTOs of DUNLAP have a lower amount of unsaponifiables than the CTO of DUNLAP. As per DUNLAP one factor in improving extractive removal is increasing the ratio of saponifiables to unsaponifiables. Each of the DTOs of MAGEE will increase the ratio of saponifiables to unsaponifiables.

/Anthony J Calandra/

Examiner, Art Unit 1741

/Matthew J. Daniels/

Supervisory Patent Examiner, Art Unit 1741